

Running head: SELF-EFFICACY: FROM THEORY TO INSTRUCTION

Self-Efficacy Beliefs:

From Educational Theory to Instructional Practice

Anthony R. Artino, Jr.

University of Connecticut

April 5, 2006

Self-Efficacy Beliefs:

From Educational Theory to Instructional Practice

Since the publication of Albert Bandura's (1977) seminal article entitled "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," countless researchers in the social sciences have used self-efficacy to predict and explain a wide range of human functioning. Additionally, over the last thirty years, the tenets of self-efficacy have been extended far beyond the bounds of educational psychology, reaching fields as diverse as health, medicine, social and political change, psychopathology, athletics, business, and international affairs (Pajares, 1996, 2004). During the last decade, research on student self-efficacy has received increasing attention in the area of academic motivation and achievement (Pintrich & Schunk, 2002; Schunk, 1991). The purpose of this article is to describe the nature and structure of self-efficacy, a key component of social cognitive theory, and to provide a brief overview of its instructional implications. Ultimately, by explicating Bandura's theory of self-efficacy, this article encourages teachers to consider and explicitly address their students' academic efficacy beliefs as they strive to provide engaging and effective instruction.

Nature and Structure of Self-Efficacy

At 80 years old, Albert Bandura is still an active teacher and researcher at Stanford University. And while Bandura's influence on educational psychology has been vast, his social-cognition theory, and, more specifically, the self-efficacy component of the theory, is believed by many to be his most enduring contribution to the study of academic achievement, motivation, and learning (Pajares, 1996, 2004; Schunk, 1991). In his most recent book on the topic, Bandura (1997) summarized the importance of self-efficacy in the following way:

People make causal contributions to their own psychosocial functioning through mechanisms of personal agency. Among the mechanisms of agency, none is more central or pervasive than beliefs of personal efficacy. Unless people believe they can produce desired effects by their actions, they have little incentive to act. Efficacy belief, therefore, is a major basis of action. People guide their lives by their beliefs of personal efficacy. (p. 2)

According to Bandura (1977, 1986, 1997), self-efficacy beliefs lie at the core of human functioning. It is not enough for a person to possess the requisite knowledge and skills to perform a task; one also must have the conviction that s/he can successfully perform the required behavior under difficult circumstances. Effective functioning, then, requires skills *and* efficacy beliefs to execute them appropriately—two components that develop jointly as individuals grow and learn. Moreover, these two components of successful human functioning act upon one another in reciprocal fashion, what Bandura (1997) calls “reciprocal causation,” where the functioning of one component depends, in part, upon the functioning of the other.

Self-Efficacy Defined

Bandura (1986) defined self-efficacy as, “People’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391). Two important aspects of this definition warrant further explanation. First, self-efficacy is a *belief* about one’s *perceived capability*, and as such, does not necessarily match one’s actual ability in a specific domain. In fact research findings have suggested that most students actually overestimate their academic capabilities (Bandura, 1997; Pajares, 1996). Bandura (1986) argued, however, that the most useful efficacy judgments are those that slightly exceed one’s actual capabilities, as this overestimate can actually increase effort and persistence during difficult times. A second important aspect of Bandura’s (1986) definition of self-efficacy is the idea that

individuals make use of their efficacy judgments in reference to some *goal* (“attain designated types of performances”), which reflects both the task- and situation-specific nature of efficacy beliefs. This aspect of self-efficacy stands in contrast to other, more general measures of expectancy such as self-concept and self-perceptions of competence, which, although they may be domain specific, tend to be more global self-perceptions (Pajares, 1996).

Self-Efficacy Influences on Human Functioning

Bandura (1977) hypothesized that self-efficacy affects an individual’s choice of activities, effort, and persistence. People who have low self-efficacy for accomplishing a specific task may avoid it, while those who believe they are capable are more likely to participate. Moreover, individuals who feel efficacious are hypothesized to expend more effort and persist longer in the face of difficulties than those who are unsure of their capabilities (Bandura, 1977, 1997). The tendency for efficacious people to “expend more effort and persist longer” is of particular importance because most personal success requires persistent effort. As such, low self-efficacy becomes a self-limiting process. In order to succeed, then, people need a strong sense of task-specific self-efficacy, tied together with resilience to meet the unavoidable obstacles of life (Bandura, 1997).

Sources of Self-Efficacy

Self-efficacy theory postulates that people acquire information to evaluate efficacy beliefs from four primary sources: (a) enactive mastery experiences (actual performances); (b) observation of others (vicarious experiences); (c) forms of persuasion, both verbal and otherwise; and (d) “physiological and affective states from which people partly judge their capableness, strength, and vulnerability to dysfunction” (Bandura, 1997, p. 79). Of these four information sources, research has shown that enactive mastery experiences are the most influential source of

efficacy information because they provide the most direct, authentic evidence that an individual can gather the personal resources necessary to succeed (Bandura, 1977, 1997). As one might expect, past successes raise efficacy beliefs, while repeated failures, in general, lower them (Bandura, 1977). However, the influence of performance successes and failures is a bit more complex than this. For example, “after strong efficacy expectations are developed through repeated success, the negative impact of occasional failures is likely to be reduced” (Bandura, 1977, p. 195). Thus, the effects of failure on personal efficacy really depend on the strength of individuals’ existing efficacy beliefs, as well as the timing of failures with respect to the totality of their performance experiences. In other words, later failures may not negatively impact efficacy beliefs to the same extent as earlier failures might.

While experienced mastery has been shown to produce the most powerful influence on efficacy beliefs, individuals also can learn by observing the successes and failures of others. According to Bandura (1977, 1997), so-called vicarious experiences can generate efficacy beliefs in observers that they too can attain success through persistence and effort. However, such vicarious experiences, which rely on social comparisons and modeling, are postulated to be less dependable sources of information about one’s own capabilities than is experienced mastery. As such, efficacy beliefs induced solely by observation and modeling of others tend to be weaker and more susceptible to change (Bandura, 1977).

A third source of efficacy information comes from verbal persuasion from others. Such social persuasion is widely used in the classroom to help students believe that they can in fact cope with difficult situations. In the words of Bandura, “verbal persuasion alone may be limited in its power to create enduring increases in perceived efficacy, but it can bolster self-change if the positive appraisal is within realistic bounds” (Bandura, 1997, p. 101). On the other hand,

overly optimistic persuasive comments tend to be ineffective, particularly if the individual being persuaded ultimately fails—a result that acts to discredit the persuader and undermine the recipient's efficacy beliefs (Bandura, 1977, 1997).

The fourth and final source of efficacy information comes from one's own physiological and emotional feedback during performance, particularly those involving physical activity. For example, according to Bandura (1977, 1997), individuals interpret stress reactions (e.g., increased heart rate, sweating, hyperventilation, and feelings of anxiety and fear) during demanding tasks as signs of vulnerability. Because excessive physiological and emotional arousal can often negatively impact performance, individuals tend to expect success, to a greater extent, when they are *not* overcome by stress reactions than if they are “tense and viscerally agitated” (Bandura, 1997, p. 106). Unfortunately, fear reactions tend to generate further thoughts of impending danger, thereby significantly elevating an individual’s anxiety level far beyond what may be warranted by the actual situation (Bandura, 1977). Ultimately, information conveyed by physiological reactions is cognitively assessed by individuals and can positively or negatively influence efficacy beliefs, depending on the level of arousal and a person’s cognitive appraisal (Bandura, 1997).

Measuring Self-Efficacy: Domain Specificity

An important aspect of self-efficacy is its domain specificity. That is, people judge their capability depending on the particular domain of functioning (Bandura, 2006). Personal efficacy, then, is not a general disposition void of context, but rather a self-judgment that is specific to the activity domain. As such, high self-efficacy in one domain does not necessarily mean high efficacy in another. For example, a student may have high efficacy for understanding historical passages in a political science text and low efficacy for completing time-rate-distance word

problems in mathematics. Therefore, to achieve predictive power, measures of perceived self-efficacy should be “tailored to domains of functioning and must represent gradations of task demands within those domains” (Bandura, 1997, p. 42).

In educational research, perceived self-efficacy is often measured using self-report surveys that ask participants to rate the strength of their belief in their ability to execute the requisite activities (Bandura, 2006). In many cases, however, educational researchers have mismeasured self-efficacy due, in large part, to their misunderstanding of the construct (Bandura, 1997, 2006; Pajares, 1996). As Pajares (1996) pointed out, “Because judgments of self-efficacy are task and domain specific, global or inappropriately defined self-efficacy assessments weaken effects” (p. 547). Therefore, a researcher attempting to predict or explain an academic outcome, for instance, is more likely to find a strong relationship between self-efficacy and the outcome of interest if the efficacy scale follows two theoretical guidelines: (a) it assesses *specific aspects* of the task and (b) the specificity *corresponds* to the characteristics of the task being assessed and the domain of functioning being analyzed (Bandura, 1997). In Bandura’s (1997) words, “this requires clear definition of the activity domain of interest and a good conceptual analysis of its different facets, the types of capabilities it calls upon, and the range of situations in which these capabilities might be applied” (p. 42). Thus “omnibus measures” of general, contextless dispositions have relatively weak predictive power; whereas domain-linked measures of perceived efficacy have been shown empirically to be good predictors of numerous outcomes, including such diverse criteria as academic performance, pain tolerance, proneness to anxiety, and political participation (Bandura, 1997).

Although it is clear that task and domain-specific measures of perceived efficacy have greater predictive power than global measures of the construct, Bandura (1997) warned that it is

incorrect to believe that self-efficacy is concerned solely with “specific behaviors in specific situations.” In his words “domain particularity does not necessarily mean behavioral specificity” (Bandura, 1997, p. 49). In fact, Bandura (1997) distinguished among three levels of generality of assessment. The most specific level measures self-efficacy for a particular accomplishment under a narrowly defined set of conditions. The next level measures perceived efficacy for a class of performances within the same domain and under similar conditions. Finally, the most general level “measures belief in personal efficacy without specifying the activities or the conditions sharing common properties” (Bandura, 1997, p. 49). As discussed before, however, undifferentiated, contextless measures of perceived self-efficacy have meager predictive power. Thus, Bandura (1997) advised, “the optimal level of generality at which self-efficacy is assessed varies depending on what one seeks to predict and the degree of foreknowledge of the situational demands” (p. 49).

Self-Efficacy in the Classroom: Instructional Implications

Since Bandura’s (1977) seminal article on self-efficacy, there has been an accumulation of research evidence supporting the positive links between students’ academic efficacy and their achievement. Specifically, the evidence has shown that students with high self-efficacy in various academic domains choose to engage in tasks that foster the development of their skills and abilities in those areas; exert effort in the face of difficulty; and persist longer at challenging tasks when they have the requisite skills (Pintrich & Schunk, 2002; Schunk, 1991). Furthermore, besides the positive influence that self-efficacy appears to have on the *quantity* of effort, there is evidence that students high in academic efficacy differ in terms of the *quality* of their effort, using more deep cognitive and metacognitive processing strategies than their counterparts with weaker academic efficacy (Pintrich & De Groot, 1990).

While educators are understandably concerned about teaching students skills, results from almost 30 years of self-efficacy research have made it clear that “simply possessing skills does not ensure that students will be motivated to apply them” (Schunk, 1991, p. 227). Instead, students need both “the skill and the will” to successfully function within different domains and under a variety of circumstances (Pintrich & De Groot, 1990). In fact, much of the research suggests that students’ perceptions of competence may more accurately predict their motivation and future academic choices than actual competence. Therefore, Bandura (1997) and others have suggested that teachers would do well to implement instructional practices that foster both skill attainment and the development of the necessary accompanying confidence (Bandura, 1997; Pajares, 1996). At the same time, efficacy experts caution that attempting to build positive efficacy beliefs through programs that overemphasize verbal persuasion methods is unlikely to be successful. Instead, teachers should focus their efforts primarily on providing students with authentic mastery experiences. Clearly, instructional strategies focused on providing students with opportunities for performance success align well with Bandura’s (1977, 1997) emphasis on enactive attainment as the most influential source of self-efficacy information.

With a sound understanding of academic self-efficacy, teachers will be well positioned to develop and implement effective instructional strategies. Specific examples of how teachers can apply the tenets of academic self-efficacy into classroom practice are provided below:

1. *Set clear and specific goals.* Research has shown that when students set a realistic goal, or are given a reasonable goal by a teacher, they are more motivated to perform than students who are given no goals or who are simply told to try their best (Locke & Latham, 1990). According to Bandura (1997), students who set a goal are likely to experience an initial sense of self-efficacy for achieving the goal and also are apt to make a commitment to attempt it. As

students work at the task, “they engage in activities that they believe will lead to goal attainment: attend to instruction, rehearse information to be remembered, expend effort, and persist” (Schunk, 1991, p. 213). Ultimately, students’ self-efficacy is validated as they observe goal progress and see that they are becoming more skillful.

2. *Encourage the use of challenging and proximal goals.* Goals should be challenging but not outside the range of students’ capabilities. Difficult but achievable goals give students the opportunity to put forth effort and obtain feedback as they make progress toward goal completion. Goals that are too far beyond students’ skill level will likely lead to frustration and may actually degrade efficacy beliefs (Pintrich & Schunk, 2002). Moreover, research has shown that proximal goals tend to provide better efficacy information for students than do distant goals, because students can judge progress toward goal achievement with the former better than with the latter (Schunk, 1991).

3. *Provide honest, explicit feedback to increase students’ efficacy beliefs.* Honest feedback, in the form of verbal persuasion and/or rewards that are given contingent upon performance, provides efficacy information to learners and encourages their continued movement toward goal attainment. Praising students non-contingently can be detrimental in that students do not get useful feedback on the development of their actual skills. Without explicit feedback on the growth of genuine skills, students likely will have a difficult time trying to change or regulate their behavior. For example, praising students indiscriminately for performing a task, regardless of how *well* they perform, can lead students to think they are good at a task when really they are not (Pintrich & Schunk, 2002).

4. *Use models that build self-efficacy.* Next to experienced mastery, vicarious experiences have been shown to be powerful influences on efficacy beliefs. As Schunk (1991)

described, “observing others succeed can convey to observers that they too are capable and can motivate them to attempt the task” (p. 216). From an instructional perspective, teachers can use other students as models to demonstrate how to successfully complete a learning task (e.g., by asking a student to solve a math problem on the board). However, teachers need to be aware that not all classroom models are equally effective. In general, models have a greater influence on observers’ self-efficacy when they are perceived as competent, similar, credible, and enthusiastic (Bandura, 1986). With these characteristics in mind, teachers can better enhance learner efficacy by (a) having models display skills correctly (competence); (b) using models of equal or slightly greater competence than observers (perceived similarity); (c) ensuring that models act consistent with behaviors they model (credibility); and (d) choosing models that show interest and enthusiasm, which also holds true for teachers who, themselves, can be informative models.

Conclusions

The self-efficacy component of Bandura’s (1977, 1986, 1997) social cognitive theory has had a profound impact on the study of motivation and achievement in academic settings. In fact, results from a recent meta-analysis of more than 100 empirical studies conducted over the last 20 years found that of nine commonly researched psychosocial constructs, academic self-efficacy was the strongest single predictor of college students’ academic achievement and performance (Robbins et al., 2004). It seems, then, that cultivating students’ academic self-efficacy is a worthwhile goal for any educator. Bandura (1997) made this very argument when he stated, “the major goal of formal education should be to equip students with the intellectual tools, efficacy beliefs, and intrinsic interests needed to educate themselves in a variety of pursuits throughout their lifetime” (p. 214). As information technologies continue to revolutionize teaching and learning, it seems likely that strong, resilient efficacy beliefs will become even more critical for

individuals, as they attempt to exercise control over their own education in progressively more independent, technology-mediated learning environments.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Company.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Adolescence and education, Vol. 4: Self-efficacy beliefs of adolescents*. Greenwich, CT: Information Age Publishing.

Locke E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543-578.

Pajares, F. (2004). *Albert Bandura: Biographical sketch*. Retrieved March 13, 2006 from <http://des.emory.edu/mfp/bandurabio.html>

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning component of classroom academic performance. *Journal of Educational Psychology, 82*, 33-40.

Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education* (2nd ed.). Upper Saddle River, NJ: Pearson Education.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, K. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin, 130*, 261-288.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist, 26*, 207-231.